

NOTES ON EGG-LAYING AND MATING HABITS OF
MYOPSOCUS NOVAE ZELANDIAE KOLBE

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In the introduction to his monograph of the *Copeognatha* of *New Zealand*, published in *Transactions N. Z. I.*, Vol. 54, pp. 162–197, Dr. Tillyard states that “little is known of the life histories of the Psocoptera. Their eggs are laid in flat masses of twenty or more together on leaves or under bark and are covered with a fine protective web spun from the mouth of the insect in a manner similar to that of the lepidopterous caterpillar.” (p. 173).

In his description of the *Myopsocinae*, he states that “they were easily reared by keeping them on pieces of bark in dry tubes closed with cotton wool.” In his “*Insects of Australia and New Zealand*” he briefly refers to the eggs as “flattened and laid in masses generally on leaves or bark—the female covering them over with a silken web.”

Dr. Imms in his “*General Text Book of Entomology*” gives a figure of portion of a leaf with “eggs beneath silken threads” (*Peripsocus phaeopterus*) Fig. 296.

Dr. Comstock, in his “*Introduction to Entomology*,” says the “eggs are laid in heaps on leaves, branches and the bark of trunks of trees. The female covers them with a tissue of threads. It is believed that both sexes have the power of spinning threads. The silk is spun from the labium.”

Myopsocus novae-zelandiae.

This insect is common in the vicinity of Christchurch, N. Z., where it breeds freely on the weather-worn and rotting fences surrounding city and suburban properties. The following observations were made on these insects, breeding on the upright and cross pieces of wood framework, supporting a corrugated iron fence. The section is situated within a quarter of a mile from the sea, and the lie of the fence is such as to leave the inner side of the fence in the shade for the greater part of the day. All observations were taken on the shady side where the insects congregated.

Females predominated largely, about a dozen females being easily captured for every male, taken or observed. The greater

number were taken from the under side of the cross beams, where groups of a dozen or more would be found sitting or feeding. On being disturbed they rarely fly, but run with surprising speed round the angle of the beam, to hide in the crevice between the wood and iron. Failure to grip the roof-like wings with the forceps would cause the insect to take flight with a quick flip of the wings, but only for a short distance of from two to three feet, giving the flight more of the appearance of a jump to the fresh spot where they settled.

About a dozen females were put in a glass jar on January 28, and to these were added males at intervals up to February 10. Dead specimens were removed on the 14th, 16th and 21st of February, but afterwards no special note was taken of the mortality.

Adults could be captured from the fence till the end of February. Young specimens were collected on January 21 and 29, February 1 and 9, the last lot being taken on March 4, after which the young broods appeared to have retreated well into the crevices of the woodwork. The young broods of first and second instars congregate closely together and can easily be captured by leaving a flat piece of wood along the framework of the fence. On the following day the young specimens would be found adhering to the under surface, for both young and adults appear to have a preference for the under side of the beams and framework.

Mating.

The larger females with their mottled roof-like wings are sluggish, as compared with the smaller males, and give one the suggestion of well-fed miniature rabbits, crouched down to the wood surface. The males are brisk in their movements, stand up on their legs, and when not feeding put in their time running around the females, carrying on a courtship which one can only describe as comical. First a series of quick jerky movements, as a parade around the quiescent female, till he arrives at a position facing his partner (as a rule). Heads come in close contact and the mouth-parts of the male can be seen to be apparently licking the face of the female. This performance is terminated suddenly by the male standing on his head and curving his body over the female, wings extended, and opening and closing. In sunlight a surprisingly beautiful effect is produced, the wings glistening with a ruby iridescence probably quite entrancing to the female. The

female remains quite irresponsive to the excitement of the male whose body is arched over the female and the spasmodic movements of the male terminalia are quite obvious to the onlooker. All the excitement of the male is merely a prelude to the instant when the female chooses to take the initiative; and till she does so the male, perforce, must continue his acrobatic performances. In the actual mating position the female takes the dominant and upper position, the smaller male being held down by the larger body of the female, aided by the slightly expanded wings.

One pair was watched for fifteen minutes, but unfortunately the writer was called away, so no record of the total period was obtained.

A female disturbed in the mating position moved forward slightly, causing the male to become twisted into a curve, without any attempt at resistance, and this peculiar position was retained for more than twenty minutes.

During the whole period of daylight, the males kept up their acrobatic performance, with unabated zeal, and one surmises that they stood on their heads on an average of two or three times in every five minutes, at the least.

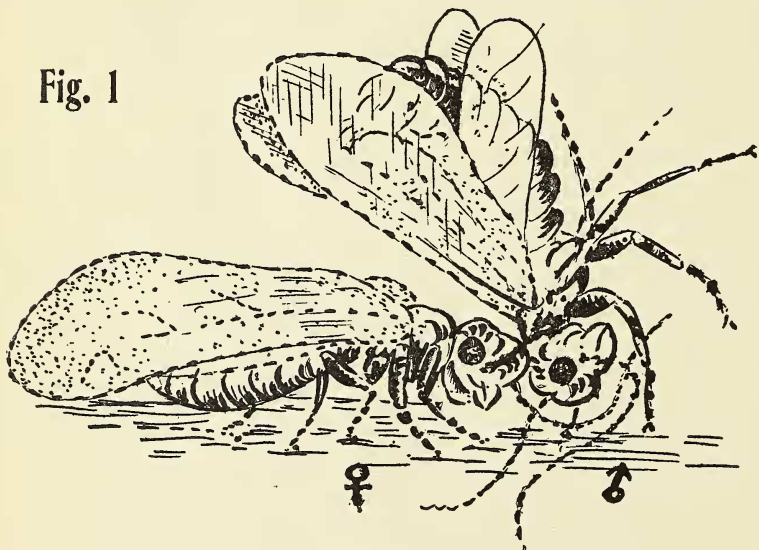


Fig. 1. *Rough sketch illustrating courtship.*

Eggs.

After a few days in captivity with the males, eggs were deposited in small, more or less oval, flattened masses on the pieces of wood in the jar. The smallest mass counted contained 46 to 50 eggs, but the average mass contained from 100 to 200. On the fence beams these masses were deposited on the under surface of a rotting beam placed on top of one of the cross pieces, the eggs therefore receiving shelter from excess moisture and light conditions. No eggs were discovered in the cracks or crevices. Eggs vary in colour from a light sandy grey to a darker colour. The honey-comb appearance is much less distinct in newly laid batches. Egg masses were taken with newly-hatched young that had failed to extricate themselves, after being tangled up in the egg mass debris. The top of each is broken open, but details of the process of emergence were not observed.

In a long series of specimens, ranging from first instar to adult, only four sizes of mandibles could be discovered, giving support to the suggestion by Dr. Tillyard that the instars are four in number.

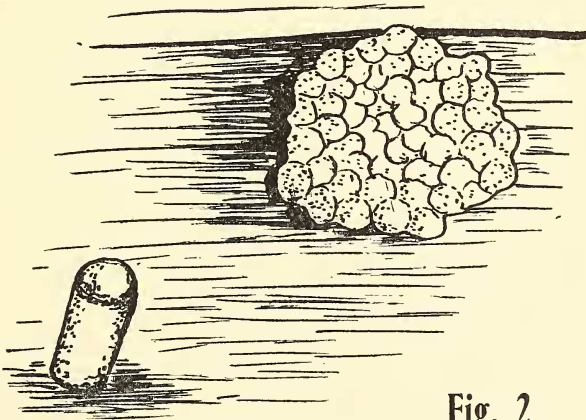


Fig. 2

Fig. 2. *Rough sketch of small batch eggs laid on wood in glass jar, and of a single egg.*

Web.

In no case was any formation of web observed on egg masses and no attempt to cover the eggs by the females in captivity. Absence of web was markedly apparent. In the narrow cracks and

crevices occupied by very young specimens, a small amount of threads is apparent, but no evidence was available as to the origin of the threads. The assumption is that this species can, and does, spin a minimum amount, as compared with other species. No web was spun for the covering of the egg batches which were deposited between two adjacent wood surfaces and left entirely free to the limited light and moisture conditions of the fence.

To the writer, a study of the mating position and the details of the male and female genitalia, suggests that the "hooked" terminal appendages mentioned by Dr. Tillyard may possibly be of the nature of cerci with sensory glands and functions, rather than copulatory apparatus, for which both sexes have a specialized set of claspers, etc.

LITERATURE CITED.

Transactions N. Z. I., Vol. 54, 1925, pp. 162-197.

Introduction to Entomology, J. H. Comstock, 1924, p. 333.

General Text Book of Entomology, A. D. Imms, 1925, pp. 283-288.

Insects of Australia and New Zealand, R. J. Tillyard, pp. 126-130.

Notonecta reuteri, new name for *Notonecta scutellaris* Reuter 1886.—The name *scutellaris* was proposed for a variety of *Notonecta lutea* Müller. Kirkaldy says in his Revision of the Notonectidae (*Trans. Ento. Soc. London*, 1897, Part IV, p. 425) that "Dr. Sahlberg has exhibited to the Societas Fennica some interesting varieties of this species (*Notonecta lutea*), one of which he has generously added to my collection. . . ." I have seen this specimen in Kirkaldy's collection. Recently I have received a fine pair of specimens from Dr. Kiritschenko, of Leningrad. The name *scutellaris* was proposed by Fieber in his *Rhynchotographieen* for his first variety of *Notonecta variabilis* Fieber (1851).—H. B. HUNGERFORD, Lawrence, Kansas.